

**Notice of Allowability**

Application No.

10/698,313

Applicant(s)

OLHAUSEN ET AL

Examiner

Charles I. Boyer

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1751

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the application received Oct 31, 2003.
2. ☒ The allowed claim(s) is/are 1-25.
3. ☐ The drawings filed on \_\_\_\_\_ are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date Oct 31, 2003
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

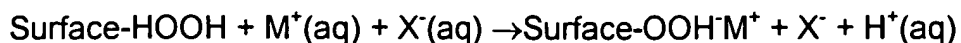
CHARLES BOYER  
PRIMARY EXAMINER

*Charles Boyer*

***Allowable Subject Matter***

1. The following is an examiner's statement of reasons for allowance:

Applicants have claimed a cleaning and multifunctional coating composition for treating a surface comprising a cationic organosilane quaternary ammonium compound which is bondable onto said surface and hydrogen peroxide in an aqueous media, said components in effective amounts for cleaning said surface and for bonding a multifunctional coating onto said surface thereby rendering it (a) water and soil repellent and (b) antimicrobial. Organosilicon compounds are well known in the art for imparting water repellency and antimicrobial properties to surfaces. The closest prior art of EP 129,980 teaches hypochlorite bleaching compositions containing organosilicon quaternary ammonium compounds. Applicants specifically teach a synergistic effect between the organosilicon compound and hydrogen peroxide, resulting in increased bonding of organosilicon to a surface. Referring to pages 10-12 of the present specification: "it has not been known before this invention to combine hydrogen peroxide with an organosilane quat to obtain the cleaning and coating benefits described herein, especially the synergistic activities. In order to understand the synergistic activities that have been demonstrated in the following Examples of this invention, it is believed that hydrogen peroxide, which is very similar to water, will be adsorbed onto anionic surfaces in a similar manner as demonstrated by the following equation:



wherein  $\text{M}^+$  is an organic cation other than  $\text{H}^+$ , and  $\text{H}^+$  is displaced from

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adsorbed surface hydrogen peroxide to become hydrated and to enter the aqueous phase as  $H^+(aq)$ . It is believed that the organic cation ( $M^+$ ) is thus hydrogen bonded to the anionic surface associated with the hydroperoxide ion ( $-OOH^-$ ) even stronger than when associated with the hydroxide ion ( $-OH^-$ ) when water is on the anionic surface. If the organic cation also contains a silane function ( $-Si-OR$ ) which can hydrolyze to a silanol ( $-Si-O-H$ ), additional bonding of a chemical nature can occur with the substrate silanols on the substrate surfaces or to another organic cation silanol which would lead to polymerization and crosslinking of the organo quaternary compounds on the substrate surface. This chemical bonding leads to a durable coating which is not easily removed from the substrate surface. With the additional cleaning capability of hydrogen peroxide on anionic surfaces and its ability to strengthen the hydrogen bonding of the silane quaternary cation ( $M^+$ ) to the anionic surface, thus facilitating the enhanced chemical bonding of the silane to the surface and subsequent crosslinking, an improved surface bonding or durability of the coating results from application of the compositions of this invention. It has been found that the combination of the cationic organosilane quaternary compound with hydrogen peroxide provides synergistic results. In other words, the resultant bonding and durability of this combination of components unexpectedly exceeds the summation of the individual components' activities, as demonstrated by the Examples which follow."

In light of this teaching that the combination of the cationic organosilane

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quaternary compound with hydrogen peroxide provides synergistic bonding and durability, it would not have been obvious to one of ordinary skill in the art to use hydrogen peroxide in place of sodium hypochlorite without the benefit of the teachings of the present invention. Accordingly, the present claims are allowable.

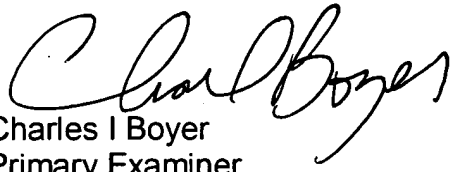
Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles I. Boyer whose telephone number is 571.272.1311. The examiner can normally be reached on M-F 9:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yogendra Gupta can be reached on 571 272 1316. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Charles I Boyer  
Primary Examiner  
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